

Environmental
Restoration
Contractor

ERC Team

Meeting Minutes

SUBJECT GROUNDWATER/VADOSE ZONE INTEGRATION PROJECT MEETING - JUNE 5, 2000

TO Distribution

FROM Michael J. Graham, Groundwater/Vadose Zone Integration Project Manager

DATE May 15, 2000

ATTENDEES

See Attached List

DISTRIBUTION

Attendees

GW/VZ Distribution List

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NEXT GW/VZ INTEGRATION PROJECT OPEN MEETING:

Next Meeting: Monday, June 19, 2000 – 1-3 p.m.

Location: Bechtel Hanford, Inc., Assembly Room (Badging Required)

Local Call-In Number: (509) 376-7411

Toll Free Call-In Number: (800) 664-0771

MEETING MINUTES:

A Groundwater/Vadose Zone (GW/VZ) Integration Project Open Meeting was held on June 5, 2000 in Richland, Washington, at the Bechtel Hanford, Inc. (BHI) Assembly Room.

PROJECT REPORT:

INTEGRATED PROJECT SCHEDULE UPDATE (provided at meeting) (Michael Graham)

May was a busy month. We had the Integration Project Expert Panel (IPEP) Meeting May 24 - 26. We are doing some field characterization for the S-SX Tank Farms. We have begun the actual drilling in the tank the farms. We started drilling last week. The System Assessment Capability (SAC) design document is drafted and will be the subject of a management review in a few weeks. The National Academy of Sciences (NAS) Panel Meeting is coming at the end of month, June 28 – 30.

RPP Assessments (Tony Knepp)

We started the installation of a slant borehole at SX-108, and we are down about 18 feet. We started drilling (hammering) Friday afternoon. Once we get down about 50 feet, we will run a gyro down. We will be sampling every five feet. So far, it's going well. I'm impressed with the people doing the work. We covered it in detail for the IPEP. The sampling technology developed is not a standard technology. One plus is that the sample comes up already shielded in lead.

QUESTION: Did that occur as part of a defined Science and Technology (S&T) need?

ANSWER: It was all developed by the Tank Farm crew. It was sponsored by the core projects.

Once we get a sample, we'll send it off to the lab. Then, it'll be a couple of months before we get any results back from the lab.

QUESTION: Had that been on S&T's wish list a long time?

ANSWER: It's always been our drive to develop better technology for tank farms. It was all coordinated.

QUESTION: What are the dimensions of the samples?

ANSWER: At about 50 feet, we'll start taking samples every five feet. The samples are 14 inches long and two inches in diameter. They are sleeved, wrapped in lead, and then wrapped in steel. That way there is very little exposure risk to the workers. We'll continue taking samples down to 180 linear feet. That comes out to about 19 samples. The approach is we'll drill down, go through the hole to take a sample, then put another five foot stick of pipe on it. Then we'll drive five more feet, bring a sample back up, drive five more feet, and so on. The sample is easier to handle if we sample every five feet due to the pipe lengths.

This is under tank SX-108. I thought Stan's discussion at the IPEP Meeting was interesting. His point was when a tank leaks, do you really know that the contaminants went down? Or, did they move to the side? The only data we have right now is from laterals, and those can be interpreted anyway you want. We believe it did go down.

QUESTION: My concern is how much drilling of this type near how many tanks will you have to do to explore this behavior?

COMMENT: Tom Jones has just analyzed all the major leaks. He's determined that there's really only one tank that actually leaked a large quantity due to a tank failure. What you have is over-flow and spills around diversion boxes. The T-106 was a spill, not a tank leak. If you look at the details, the so-called leaks were really process problems.

QUESTION: All this has to be turned into a source for computer model?

ANSWER: Yes. It will be the heart of the modeling piece of the SAC Report. S&T also feeds that report. It's been a consolidated effort to get at that issue. We'll have a reasonable picture. When you tie it all together, we'll have the best understanding we can get.

COMMENT: If you try to suggest it's perfect, you'll get mauled.

ANSWER: No, it won't be perfect. It's a process.

COMMENT: Let me remind you that, under law, whether it's over-flow or a spill, they are both designated as leaks.

ANSWER: We realize that.

QUESTION: What is going to be needed to characterize this adequately? How many wells are you going to have to drill?

ANSWER: Right now, we have a five year plan. Over the five years, we plan to drill 12 wells, along with several shallow pushes. This compares with the 17 wells discussed in the 1998 document. In the field we can't handle much more than that. It's a pretty healthy amount of work. Every year we plan in detail for the next fiscal year's work. Our Detailed Work Plan (DWP) covers a three-year period at a time.

QUESTION: That doesn't answer the question. How many wells are needed?

ANSWER: Well, it's difficult to answer that, Dirk. We do a field investigation. When we finish the field investigation, we look at the work, and based on the information we gain from the field investigation, we determine if we need more information. If we don't need more information, then we're done. If we do need more information, then we go back in for more. It's unique work. We've got to compare it to what the purposes were and decide whether more information is needed.

QUESTION: So, you won't know how much data is needed until you're done?

ANSWER: Well, yes. The questions answered will evolve as the work progresses. Answers will drive questions in another direction. When all the parts become better resolved, we'll know better what we need in the end.

COMMENT: So, it's not that what you're doing is wrong. It's a matter of a change in the output you need. I suggest the conceptual model here is distinctly different from what is currently being used.

ANSWER: You don't know what my conceptual model is, Dirk. And, you're right, we haven't published it. Our conceptual model is guiding our characterization effort. We are aware of most of the geotechnical and process information in the SX Tank Farm.

COMMENT: It's pretty strongly disconnected from the conceptual model.

Internally, most people realize what's been done.

QUESTION: When new monitoring wells for the Tri-Party Agreement (*Hanford Federal Facility Agreement and Consent Order*) M24 milestone are installed, do they take samples?

ANSWER: It all depends on what kind of information we want. There are two wells planned in the T-TX-TY Area and one in the S Area. We'll sample these heavily. We are going to store the samples. We'll

also be looking at the gamma logging. There will be a great deal of information. All the programs had input for data uses for *Resource Conservation and Recovery Act of 1976* (RCRA) wells.

It's pretty organized right now. S&T is set up, and everything is more coordinated. The problem now is paying for it.

S & T Update (Mark Freshley)

We've been in contact with the National Academy of Sciences (NAS) in planning for their next meeting, June 28-30, 2000. We are working on establishing an agenda for that meeting. The first day will focus on site vision and decisions and an overview of the S&T Plan and Roadmap. That's the way we're currently thinking about this first day. We are still discussing the agenda with Kevin Crowley, from the NAS. As it is, it will be a day pretty full of presentations. The current version has a comment period for Tribal Nations, regulators, and stakeholders. On Thursday we have a field trip planned. The Friday session will run from 8:00 a.m.-10:00a.m., and then we'll go into breakout groups. We are still working out the nature of these subgroups. It will probably be technical elements. Various members of the committee will sit in on those discussions. We are still talking about the draft agenda. They send information and we respond back. Sometime next week the agenda will be finalized, and Kevin will post it on the NAS website.

QUESTION: Is this field trip open to outsiders?

ANSWER: I believe it is. All NAS meetings are open. The tour will be open also, Dirk. If you want to go, let me know up front so we can make sure we've got enough space and a big enough bus.

COMMENT: I (Dirk Dunning) am definitely interested.

Second item, vadose zone transport field study. The first 4000 liters of fluid were injected on June 1 for a monitoring leak test. There were a number of other national labs present for the start of that leak test. Things are proceeding as scheduled so far. It is outlined in a test plan, and as soon as I can take a last look, it will be posted.

QUESTION: What's the purpose of that leak test?

ANSWER: To provide data sets for model calibration and to isolate Kd (distribution coefficient) transport. This test site has rings of concentric wells, monitoring points as the fluid is injected. It allows us to explain some processes that have gone on in other wells in a controlled manner.

QUESTION: Won't the results look a lot different in August than in February?

ANSWER: No. It's a PVC pipe, 2 inches in diameter. It's far enough below ground surface that you won't see a difference between winter and summer injections due to precipitation.

QUESTION: This is not a simulation?

ANSWER: It's laid out in the test plan, which will be out this week.

Third, we completed the revision of the S&T Roadmap and it will be out on the Integration Project website this afternoon. That starts a 45-day comment period. We will incorporate the comments we receive into the next revision of the document. This document will be revised and updated annually.

QUESTION: What are the primary shifts from what it was previously? What is different?

ANSWER: Some of the outcomes changed for the protection program and some of the other core projects, as well as adding risk.

COMMENT: That's what I was interested in. Risk is very important.

QUESTION: What is the name of the document that is out?

ANSWER: The revised S&T Roadmap.

QUESTION: I'm looking at the website now and I don't see it.

ANSWER: It will be there this afternoon after the meeting.

Regulatory Path Forward Work Group (Moses Jarayssi)

Last week we conducted a Regulatory Path Forward Work Group meeting on 200 Area Groundwater End Points and Remediation Plans. The workshop focused on discussion with the regulators about the status of the groundwater plumes, monitoring, projects to enhance it, requirements to set goals and standards, and land use. Also, what the counties are doing to adopt a land use decision. There were good discussions with some interest in understanding what we are trying to do to contain and remediate. We identified that we need to understand the source. There were also discussions about acceptable groundwater monitoring. The hottest discussion was around the monitoring network, where are the gaps and how to close the gaps, and eliminate any redundancy.

The next workshop will be Monday, June 12, 2000. We will be talking about the same things with all the stakeholders and the Tribal Nations. We'll be discussing the 200 Area and long-term waste management.

QUESTION: Was there any speculation of the impact to the Hanford Site if it becomes a national monument?

ANSWER: We knew so little about it at that time, we couldn't really talk about it. But, it was brought up.

QUESTION: If that becomes final do you know if monument lands are forever forbidden to residential use?

ANSWER: It will have an impact if it gets through. What that impact will be, we don't know.

QUESTION: That soft peddles an issue about land transfer. Ecology defines that. You have to clean it up to residential standards before the transfer can take place. Zoning can't be in place until it's released. It can't be released until it's transferred. It's a catch-22.

ANSWER: That may be true. But, it is not true that Ecology can't set a clean up standard besides the residential standard. They can make an industrial standard. The U.S. Department of Energy (DOE) believes that in issuing the Record of Decision (ROD) they have acted within their authority.

QUESTION: Can they zone it before they have access?

ANSWER: I don't know.

It would mean we would be returning it to the system for other use.

QUESTION: Does the county thing even apply? If it goes to the Tribal Nations?

Many other decisions will have to be made before that stage. There's about 10-15 years of decisions to make now. We need to consider this so we don't make the wrong decisions in the long-term.

COMMENT: DOE may be putting itself in a box where they can never give up this land.

ANSWER: Regulatory laws were never written with Hanford in mind.

COMMENT: This doesn't seem like a scientific issue. I don't see any lawyers around.

ANSWER: It's a site-wide project and there are a lot of issues that come up that are not Groundwater/Vadose Zone issues.

COMMENT: The legal requirements will be imposed from the outside. We're not going to create those.

The point is they are there.

Good point.

QUESTION: Dirk, is the Hanford Advisory Board-Environmental Restoration (HAB-ER) Committee Meeting in Hood River? Do you know where that meeting will be held?

ANSWER: They are meeting June 13th.

QUESTION: Where is it?

ANSWER: I think it's here. (BHI)

Integration Project Expert Panel Meetings (Michael Graham)

I copied the IPEP Close Out Comments for those that didn't already have a copy of it. (attached)

I want to circle back to Dirk's earlier point regarding the plan over the next 5 years relative to tank farms. We will get some feed back from the IPEP on the adequacy of that plan. There will be some good dialogue. We want to make sure we've thought through this so that we can build on a good foundation.

COMMENT: There is a distinction between what we have money for and what needs to be done. The information received from Harry's report is the best so far, in my opinion. But, that doesn't mean it's right or complete.

There isn't a significant difference between path on that report. Harry didn't have the S&T effort we brought to bear on tank issues.

That's right.

To me, the important thing is to get to work too. It's nice to see the work going on out in the field and the drilling actually happening. We're getting some real data. That gives us something to talk about.

COMMENT: I thought the IPEP attitude seemed to come a long way compared to previous sessions.

I thought we had some really constructive sessions. As far as the inventory discussion, it's the first time we've actually pulled the pieces together. They seemed to understand that, which is good. A lot of times we look ahead at how much data we have to collect, rather than considering all the data already collected. I think they saw the amount of work done on recharge here at the site.

QUESTION: There was a long discussion on the borehole element. Are they interested in risk?

Yes, the agreement is that the next meeting is going to be focused on river issues. We could basically spend a day and half on technical discussions about the river alone.

COMMENT: The ones that really caught my ear were Kevin Lindsey and Stan Leja. It's clear that what's happening is a cascading flow through sand structures rather than uniform flow through solid structures.

I think one of the things that this points out, and that we recognized from the get go, is that the one dimensional analysis in SAC Rev. 0 is not going to be adequate.

COMMENT: Randall made several key conclusions. Bentonite seems to absorb cesium due to a "wicking" effect. The cesium is bound to the soil but is in equilibrium. Some fraction is available to move if sufficient moisture is available.

COMMENT: Further resolution and study is needed.

Environmental Management Science Program (EMSP) projects as well as other National Laboratories will help answer some of that.

QUESTION: What about the substrate?

We're doing that with some of the wells and part of the analysis of the new well. I can't say to what extent it will be useful data though. It is interesting. At least now we're discussing facts, not general hypotheses.

The second to the last page is the draft review of SAC Rev. 0 IPEP Management Review meeting (attached). It's coming up June 20-21, 2000. We are waiting for feedback from Dr. Berkey. This is the way it's laid out. Drs. Berkey, Karr and, hopefully, Kavanaugh, will be able to be here.

Bob Bryce couldn't be here today, but I wanted to get it out in front of you.

QUESTION: The one o'clock item on the agenda, Proposed uses of Initial Assessment Results.

I can't answer that, Dirk, I'm sorry. But, when Bob gets back I can have him give you a call.

Good.

I know that there are discussions going on with the regulators on uses for the SAC Rev. 0 assessment.

QUESTION: I wouldn't expect clean up decisions to be made based solely on that.

COMMENT: I don't think there's enough information at this point to get to compliance.

I think there will be something there to provide insights. I don't think you're going to punch the button and have the answer come out.

Upcoming Events:

I know that Mike Thompson, Steve Sautter and Bruce Ford are going to Portland, Oregon to discuss Issues Tracking and Management on June 7.

QUESTION: Will there be minutes of those meetings available?

ANSWER: There won't really be minutes of any nature. This is a meeting to discuss hard spots and how we resolve them.

QUESTION: If agreements are made between Mike Thompson and Mary Lou Blazek, why aren't there agreements between Mike and me (Marty Bensky)? Beyond Hermiston, I don't think Oregon has established that they are that affected by Hanford.

ANSWER: We meet periodically with the Tribal Nations, Oregon, regulators, and we don't keep minutes for all those.

We'd be glad to report back on the outcome, Marty.

It's not intended to be secret.

COMMENT: Obviously we have different viewpoints than the other stakeholders. It would be interesting to hear what is discussed.

One correction, the Rev. Workshop is at 4:30 p.m. And the third NAS Meeting will be Sept. 6-7, 2000.

QUESTION: For these NAS meetings, do you have a starting time and start day?

ANSWER: Right now, the draft lists the start in the open session at 9:00 a.m. on Wednesday, June 28. That is subject to change.

Anything else, anybody? Okay. Have a good, safe week.

NOTES:

GW/VZ Web Site location: <http://www.bhi-erc.com/vadose>

If you have questions or comments please contact Dru Butler (509-375-4669), Gary Jewell (509-372-9192), or Alison Kent (509-372-9192)

ATTACHMENTS:


- 1) May 26, 2000, Close Out Comments from Dr. Berkey
- 2) Draft Agenda of IPEP Subpanel SAC Rev. 0 Management Review, June 20-21, 2000.
- 3) GW/VZ Integration Project Two Month Look Ahead Calendar

ATTENDEES:

Martin Bensky – Tri-Cities Caucus
Amoret Bunn - PNNL
Dru Butler – BHI
Don Clark – JAI Corp.
Dirk Dunning - ODOE
Mark Freshley – PNNL
Dib Goswami - Ecology
Michael Graham – BHI
Mary Harmon – DOE-HQ
Michael C. Hughes – BHI
Kathy Huss – SAIC

Moses Jaryassi - BHI
Gary Jewell – BHI
Alison Kent – BHI
Tony Knepp – CHG
Katy Makeig - SMS
Fred Mann – FFS
Sri Mohan – Ecology
Gordon Rogers – HAB
Stan Sobczyk – NPT
Mike Thompson – DOE-RL
Rob Yasek – DOE-RL

Attachment 1
May 26, 2000, Close Out Comments from Dr. Berkey




Hanford Site

Integration Project Expert Panel

Outbrief Presentation
7th Panel Meeting
May 26, 2000

Dr. Edgar Berkey
IPEP Chairman




Integration Project Expert Panel

Topics Covered

- **Hanford Site Outcomes and Implementation**
- **Overview of Detailed Work Plan for FY01**
- **Vadose Zone Monitoring**
- **Approaches to Inventory**
- **Update on Characterization Results and Plans**
- **Groundwater Remediation**

01-28-00 Expert Panel - Closing Comments.2




Integration Project Expert Panel

Overall Observations

- IPEP appreciates talents and hard work of IP management and staff.
- IPEP appreciates feedback received from January Closeout Report.
- Integration Project has stimulated broader thinking on integration at Hanford.
- IPEP is pleased with visible efforts to balance obtaining new data with mining “old” data.

01-28-00 Expert Panel - Closing Comments.3



Integration Project Expert Panel

Hanford Site Outcomes


Observations

- On-going effort is an excellent start
- Vision has integrated concerns of many groups
- Good progress - still long way to go
- Integration is essential at Hanford
- Integration Project can play a key role

Recommendation

- Outcomes effort should be completed and implemented as a Data Quality Objectives effort at Hanford.

01-28-00 Expert Panel - Closing Comments.4



Integration Project Expert Panel

Detailed Work Plan - 01


Observations

- Strategy and changes being proposed seem reasonable

Recommendation

- Proceed as scheduled

01-28-00 Expert Panel - Closing Comments.5




Integration Project Expert Panel

Vadose Zone Monitoring

Observations

- Studies on recharge rates have been valuable. Have shown importance of vegetation
- Vadose zone flow tests (Sisson and Lu) well designed.
- Cooperation with scientists at five national labs, very good.
- Gamma logging has some potential to assess transport rates.
- Power of long-term monitoring clearly demonstrated in analysis of gross-gamma logs.

01-28-00 Expert Panel - Closing Comments.5




Integration Project Expert Panel

Vadose Zone Monitoring (continued)

Recommendations

- Specific recharge rate studies at specific sites.
- Revegetation to reduce recharge in disturbed areas
- Transport emphasis for the field flow tests.
- Like to see planning effort on future vadose zone monitoring.

01-28-00 Expert Panel - Closing Comments.7



Integration Project Expert Panel

Approaches to Inventory


Observations

- Presentation was first step - *Thanks!*
- Next step - more quantitative presentation
- Kriging has reached limits of usefulness

Recommendations

- Provide more on inventory analysis
- No further funding of kriging re: gamma logs

01-28-00 Expert Panel - Closing Comments.8




Integration Project Expert Panel

Update on Characterization

Observations

- Applaud slant-borehole efforts
 - significant tool for future
- B-BX-BY Plan is excellent
 - case made for vertical borehole
- Data from W23-19 have promise
 - many applications
 - including S&T
- Pleased to see 5-year projection

01-28-00 Expert Panel - Closing Comments.9




Integration Project Expert Panel

Update on Characterization (continued)

Recommendations

- Do not retreat from 5-year plan
- Keep on track with field characterization
- W23-19 Report - *looking forward to it!*

01-28-00 Expert Panel - Closing Comments.10



Integration Project Expert Panel

Remediation

Observations

- Mature program
- Pump and Treat limitations understood
- Evolving long-term strategy
- ISRM implemented
- Risks associated with PITT
- Carbon tet. not characterized in North Zone

Recommendations

- Characterize Carbon tet. source and plume in North Zone
- Peer review PITT Test
- Quantify effectiveness of plume control, discuss and publish

01-28-00 Expert Panel - Closing Comments.11

Attachment 2
Groundwater/Vadose Zone Integration Project
Integration Project Expert Subpanel Meeting
Review of Assessment Design for the
System Assessment Capability, Rev 0
June 20-21, 2000
3350 George Washington Way
Richland, Washington

- AGENDA -

BECHTEL BUILDING ASSEMBLY ROOM

TUESDAY, June 20

Moderator

7:30 – 8:00	On Your Own Coffee From Columbia River Coffee House	
8:00 – 8:15	Welcome, Objectives and Ground Rules for the Review	E Berkey
8:15 – 8:45	Objectives of Initial Assessment using SAC, Rev. 0	R. Bryce, C. Kincaid
8:45 – 9:45	Analyses to be Performed	C. Kincaid, A. Bunn
9:45 - 10:30	Software Requirements	W. Nichols
10:30 - 10:45	<i>BREAK</i>	
10:45 - 11:30	Software Design/Testing	W. Nichols
11:30 - 12:30	Expected Results	C. Kincaid, A. Bunn
12:30 - 1:15	<i>LUNCH (on your own)</i>	
1:15 - 2:15	Proposed Uses of Initial Assessment Results	R. Bryce
2:15 - Open	Opportunity for Stakeholder, Tribal Nation and Regulator Input and Comments	E. Berkey

BECHTEL BUILDING ASSEMBLY ROOM

WEDNESDAY, June 21

Moderator

8:00 – 10:00	Subpanel Only - Working Session	
10:00 – 12:00	Management Review Comments and Recommendations	E. Berkey

Attachment 3

GW/VZ INTEGRATION PROJECT
JUNE 1, 2000 – AUGUST 31, 2000
TWO MONTH LOOK AHEAD CALENDAR

June 5	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
June 7	RL and BHI Meeting with Oregon Office of Energy (Portland, OR)
June 12	Regulatory Pathforward Workshop on 200 Area Groundwater BHI Assembly Room – 1:30 p. m. - 4 p.m.
June 13	HAB Environmental Restoration Committee Meeting BHI Assembly Room – 8 a.m.-4 p.m.
June 19	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
June 20-21	GW/VZ IPEP Subpanel review of SAC Rev. 0 Design Report Richland, WA (Contact: Bob Bryce)
June 28-30	NAS Committee Meeting on Hanford S&T Richland, WA (Contact: Mark Freshley)
July 3	GW/VZ Open Project Team Meeting *CANCELLED* Due to Independence Day
July 11	HAB Environmental Restoration Committee Meeting BHI Assembly Room – 8 a.m.-4 p.m.
July 17	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
August 7	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)
August 15-17	Review ERC DWP with RL/BHI Management, Regulators, and DOE-HQ
August 21	GW/VZ Open Project Team Meeting BHI Assembly Room – 1-3 p.m. (Contact: Dru Butler)

Current Public Comment Period:

May 15-July 5, 2000

System Assessment Capability (Revision 0) Assessment Description, Requirements,
Software Design and Test Plan

June 6-July 21, 2000

S&T Roadmap Revision 1